

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claims 1-29 canceled.

Please add new claims:

- 1 30. (New) A method for floating at least one substance for growing a tissue
2 part in a bioreactor, the method comprising:
3 providing at least one substance consisting of one of a tissue part, a scaffold
4 having cells deposited thereon, and a scaffold including a tissue part thereon; and
5 acting upon said substance with fluid, wherein the fluid holds the substance in
6 free flotation;
7 wherein the fluid flows in a direction counter to gravity when a density of said
8 substance is greater then a density of the fluid, and in a direction counter to buoyancy when a
9 density of said substance is less then a density of the fluid.
- 1 31. (New) A method in accordance with claim 30, wherein the fluid has an
2 increasingly lower flow speed in the direction counter to gravitation.
- 1 32. (New) A method in accordance with claim 30, wherein the substance is
2 acted upon with at least one fluid jet.
- 1 33. (New) A method in accordance with claim 30, wherein a position of the
2 substance in the bioreactor is measured by a sensor, and wherein a speed of the fluid in the
3 bioreactor is regulated to hold the substance in flotation.
- 1 34. (New) A method in accordance with claim 30, wherein the fluid flows
2 downward in the direction of gravitation, and wherein a gaseous fluid is led into the downward
3 flowing fluid.

1 35. (New) A method in accordance with claim 34, wherein a flow of the
2 gaseous fluid is slowed down by a flow of the downward flowing fluid.

1 36. (New) A bioreactor comprising:
2 a container comprising a first flow chamber;
3 at least one substance consisting of one of a tissue part, a scaffold having cells
4 deposited thereon, and a scaffold including a tissue part thereon, wherein the substance is acted
5 upon with fluid; and
6 an apparatus for conveying the fluid, wherein the substance is arranged in the first
7 flow chamber in such a manner that the fluid holds the substance in free flotation.

1 37. (New) A bioreactor in accordance with claim 36 further comprising;
2 a sensor; and
3 a regulation apparatus,
4 wherein the fluid conveying apparatus is connected to the first flow chamber, and
5 wherein the regulation apparatus is connected to the fluid conveying apparatus and to the sensor
6 in such a manner that the position of the substance may be measured and regulated.

1 38. (New) A bioreactor in accordance with claim 36, wherein the first flow
2 chamber widens upwardly.

1 39. (New) A bioreactor in accordance with claim 38, wherein the container
2 has a section of the wall, wherein said section widens upwardly and forms the first flow
3 chamber.

1 40. (New) A bioreactor in accordance with claim 36, wherein at least one fluid
2 line opens into the first flow chamber.

1 41. (New) A bioreactor in accordance with claim 36 further comprising at
2 least one fluid guiding means arranged in the container, wherein the fluid guiding means forms
3 the first flow chamber, and wherein the first flow chamber widens upwardly.

1 42. (New) A bioreactor in accordance with claim 41, wherein the fluid guiding
2 means is a hollow body.

1 43. (New) A bioreactor in accordance with claim 42, wherein the hollow body
2 has an inner space, and wherein said inner space widens upwardly and forms the first flow
3 chamber.

1 44. (New) A bioreactor in accordance with claim 42, wherein the container
2 comprises a wall, wherein the hollow body has an upwardly reducing outer contour, and wherein
3 the hollow body is arranged in the container in such a manner that the first flow chamber is
4 formed between said outer contour and the container wall.

1 45. (New) A bioreactor in accordance with claim 42, wherein the hollow body
2 is formed in the shape of a truncated circular cone.

1 46. (New) A bioreactor in accordance with claim 36, wherein the container
2 has at least one closeable opening.

1 47. (New) A bioreactor in accordance with claim 46, wherein the closeable
2 opening has a surface of at least one fourth of a cross-sectional area of the container.

1 48. (New) A bioreactor in accordance with claim 46, wherein the closeable
2 opening is arranged above the first flow chamber.

1 49. (New) A bioreactor in accordance with claim 36, wherein the fluid
2 conveying apparatus is outside the container, and wherein the fluid conveying apparatus is
3 connected to the container.

1 50. (New) A bioreactor in accordance with claim 36, wherein the fluid
2 conveying apparatus comprises a fluid conveying means arranged inside the container.

1 51. (New) A bioreactor in accordance with claim 50, wherein the fluid
2 conveying apparatus comprises an electric motor having a static motor part arranged outside the
3 container and a rotatable motor part arranged inside the container, and wherein the fluid
4 conveying means is connected to the rotatable motor part.

1 52. (New) A bioreactor in accordance with claim 51, wherein the electric
2 motor is a canned motor, and wherein the rotatable motor part is rotated without a through-going
3 shaft.

1 53. (New) A bioreactor in accordance with claim 51, wherein the fluid
2 conveying apparatus comprises a magnetic coupling drive adapted for coupling to the rotatable
3 motor part.

1 54. (New) A bioreactor in accordance with claim 51, wherein the rotatable
2 motor part is journaled at least with respect to one degree of freedom with magnetically acting
3 means.

1 55. (New) A bioreactor in accordance with claim 54, wherein the rotatable
2 motor part is completely magnetically journaled.

1 56. (New) A bioreactor in accordance with claim 50, wherein the fluid
2 conveying means is a vaned wheel.

1 57. (New) A method for floating a substance for growing a tissue part in a
2 bioreactor, the method comprising:

3 providing at least one substance consisting of at least one of a tissue part, a
4 scaffold having cells deposited thereon, and a scaffold including one or more tissue parts
5 thereon; and

6 acting upon said substance with fluid, wherein the fluid holds the substance in
7 free flotation;

8 wherein the fluid flows in a direction counter to gravity when a density of said
9 substance is greater then a density of the fluid, and in a direction counter to buoyancy when a
10 density of said substance is less then a density of the fluid.

1 58. (New) A method in accordance with claim 34, wherein the gaseous fluid is
2 oxygen.

1 59. (New) A method in accordance with claim 34, wherein the gaseous fluid is
2 air.

1 60. (New) A method in accordance with claim 57, wherein the substance is
2 acted upon with at least one fluid jet.

1 61. (New) A method in accordance with claim 57, wherein a position of the
2 substance in the bioreactor are measured by a sensor, and wherein a speed of the fluid in the
3 bioreactor is regulated to hold the substance in floatation.

1 62. (New) A method in accordance with claim 57, wherein the fluid flows
2 downward in the direction of gravity, and wherein a gaseous fluid is led into the downward
3 flowing fluid.

1 63. (New) A method in accordance with claim 62, wherein a flow of gaseous
2 fluid is slowed down by a flow of the downward flowing fluid.

1 64. (New) A method in accordance with claim 57, wherein the fluid has an
2 increasingly lower speed in the direction counter to gravity.

1 65. (New) A bioreactor in accordance with claim 36 further comprising a
2 second flow chamber arranged above the first flow chamber, wherein the second flow chamber is
3 formed in such a manner that fluid flowing from top to bottom therein has a lower speed with
4 decreasing height.

1 66. (New) A bioreactor in accordance with claim 65, wherein the first and the
2 second flow chambers form a common inner space which has an inlet opening for the fluid at the
3 top and at the bottom and which has an outlet opening between the top and bottom inlet opening.

1 67. (New) A bioreactor in accordance with claim 65, wherein the fluid
2 conveying means is a pump that is connected to the top and bottom inlet opening and to the
3 outlet opening in such a manner that the quantity of fluid flowing into the top and bottom inlet
4 opening may be controlled.

1 68. (New) A bioreactor in accordance with claim 40 wherein the at least one
2 fluid line is arranged such that it opens into the first flow chamber from below with respect to the
3 first flow chamber.

1 69. (New) A bioreactor in accordance with claim 40 wherein the at least one
2 fluid line is arranged such that it opens into the first flow chamber laterally with respect to the
3 first flow chamber.

1 70. (New) A bioreactor comprising a container for a substance, the bioreactor
2 comprising:

3 a first flow chamber to which a flowing fluid may be supplied, with the first flow
4 chamber being designed such that the fluid flowing upwardly therein has a lower speed with
5 increasing height; and

6 a second flow chamber arranged above the first flow chamber, the second flow
7 chamber being designed such that fluid flowing from top to bottom within the second flow
8 chamber has a smaller speed with decreasing height;

9 wherein the first flow chamber and the second flow chamber form a common
10 inner space that has a first inlet opening for the fluid at a top of the common inner space and a
11 second inlet opening for the fluid at a bottom of the common space; and

12 wherein the common inner space has an outlet opening between the first and
13 second inlet openings.